



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/489,514	01/21/2000	S. R. Narayanan	06618-406001	5937
20985	7590	02/09/2006	EXAMINER	
FISH & RICHARDSON, PC P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022			MERCADO, JULIAN A	
			ART UNIT	PAPER NUMBER

1745

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/489,514	NARAYANAN ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Julian Mercado	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-10 and 12-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-10 and 12-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Remarks***

This Office action is responsive to applicant's amendment filed November 23, 2005.

Claims 7-10 and 12-26 are pending, of which claims 23-26 are newly submitted.

### ***Claim Objections***

Claims 13, 20 and 23 are objected to because of the following informalities:

1. In claim 13 at line 10, it is suggested to change "fluoro-carbon polymer" to --fluorocarbon polymer--, in order to provide more proper antecedent for the fluorocarbon polymer in claim 14. (alternatively, the reverse modification would also comply)
2. In claim 20 at lines 7-11, it is suggested to change "and a catalytic material including platinum and another catalytic material, which are randomly spaced and uniformly mixed, bonded to the membrane;" with --and a catalytic material including platinum and another catalytic material, which are randomly spaced and uniformly mixed; and bonded to the membrane--. (strikethrough and underlining added)
3. In claim 23 at lines 1-2, it is suggested to change "said the ionomer" to --the ionomer--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Art Unit: 1745

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 18 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 18 has been amended to recite in the preamble “A process comprising:...” The body of the claim maintains the prior “providing...”, “applying...” and “bonding...” steps while also adding a step directed to “using said membrane...” As such, the claim is directed to a combination of a “process of making” and a “process of using,” entities which exist in two different statutory classes of invention. The claim is rejected under 35 U.S.C. 101 based on the theory that the claim is directed to neither a “process of making” nor a “process of using,” but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-10 and 12 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a catalytic material of 60/40 to 40/60 Pt-Ru, does not reasonably provide enablement for “substantially 60% platinum and 40% ruthenium.” See claim 7. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope

Art Unit: 1745

with these claims. It is suggested to change “substantially 60% platinum and 40% ruthenium” to --60% platinum and 40% ruthenium--.

Claims 8-10 and 12 are rejected under 35 U.S.C. 112, first paragraph as being dependent upon a rejected base claim.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 depends from claim 11, with the latter claim having been canceled in the present amendment. Thus, the scope of claim 12 is indefinite.

For the reasons set forth above under 35 U.S.C. § 101 (discussion above), claim 18 is directed to a combination of a process of making and a process of using. Thus, the statutory type of invention (and hence the claimed scope) is indefinite; as a result of the combination of two separate statutory classes of invention a manufacturer or seller would not know the metes and bounds of the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

Art Unit: 1745

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7, 8, 10, 13, 14, 18, 20 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Serpico et al. in view of the Dupont Zonyl reference and Trainham III et al. (U.S. Pat. 5,411,641)

The rejection is maintained for the reasons already of record and for the following additional reasons in view of the amendment to the present claims. The examiner notes the present amendment to independent claim 7 now reciting an ionomer which has a property of improving ion conduction. While Serpico et al. does not explicitly teach an ionomer, Trainham et al. teaches addition of a sulfonated fluoroionomer such as Nafion to catalyst inks. See col. 8 line 9 et seq. (examiner note: this teaching is by Wilson and Gottesfeld, as cited in Trainham III et al.) Additionally, the fluoroionomer, i.e. fluorocarbon polymer is specifically disclosed as being supported on fluorocarbon fabric. See col. 6 line 10 et seq. Thus, the skilled artisan would find obvious to employ a Nafion ionomer in Serpico et al.'s invention in order to "enhance the catalyst-ionomer surface contact and to act as a binder to the Nafion® membrane sheet." (Ib.)

As to the present amendment now reciting the catalytic material including platinum and ruthenium, it is asserted that Serpico et al. specifically teaches a Pt-Ru catalytic material in col. 4 line 26.

Regarding the relative amounts of platinum to ruthenium and the wt. % amount of fluorocarbon polymer, the examiner relies on the very reasoning set forth by the Decision on Appeal of the instant application, "[t]he normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where, in a disclosed set

Art Unit: 1745

of percentage ranges, is the optimum combination of percentages.” See Decision on Appeal, page 3. Thus, absent of unexpected results it is asserted that the relative amounts of platinum to ruthenium and the wt. % amount of fluorocarbon polymer are each an optimizable parameter for a result-effective variable. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980)

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Serpico et al. in view of Dupont Zonyl reference and Trainham III et al., and further in view of Kindler.

Notwithstanding the 35 U.S.C. 112, second paragraph rejection of claim 12 (discussion above), this rejection is maintained for the reasons set forth above and for the reasons of record. The examiner notes that claim 12 has been previously presented.

Claims 15-17, 19, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Serpico et al. in view of the Dupont Zonyl reference and Trainham III et al., and further in view of Samuels et al.

This rejection is maintained for the reasons set forth above and for the reasons of record. The examiner notes that claims 15-17, 19, 21 and 22 have been previously presented.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

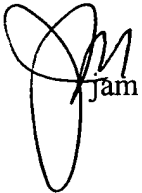
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Art Unit: 1745

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



**PATRICK JOSEPH RYAN**  
**SUPERVISORY PATENT EXAMINER**